UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P O Box 1450
Alexandria, Virginia 22313-1450
www uspto gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,176	01/29/2001	James A. Proctor JR.	TAN-2-1508.01.US	1093

24374 7590 05/13/2013
VOLPE AND KOENIG, P.C.
DEPT. ICC
UNITED PLAZA
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER	
BURD, KEVIN MICHAEL	
ART UNIT	**PAPER NUMBER**
2632	

NOTIFICATION DATE	DELIVERY MODE
05/13/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eoffice@volpe-koenig.com

Office Action Summary	Application No. 09/772,176	Applicant(s) PROCTOR, JAMES A.	
	Examiner Kevin M. Burd	Art Unit 2632	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1,2,5,6,8,9,11,12,15,16,19,21,22,25,26,28,29,31,32,35,36,39,42 and 62-65* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Interim copies:

a)☐ All b)☐ Some c)☐ None of the: Interim copies of the priority documents have been received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,2,5,6,8,9,11,12,15,16,19,21,22,25,26,28,29,31,32,35,36,39,42 and 62-65.

1. This office action, in response to the amendment filed 2/28/2013, is a final office action.

Response to Arguments

2. Applicant has added new limitations and removed limitations from each of the independent claims. New rejections to the claims are stated below. In addition, new rejections of some claims under 35 USC 112 are stated below.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(a):
(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), first paragraph:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 8, 9, 11, 12, 28, 29, 31, 32, 62 and 64 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 62, 8, 9, 11 and 12, new claim 62 recites the receiving a measurement of a frequency variance of the wireless signal or a phase variance of the wireless signal. Claim 1 recites the receiving a measurement of an amplitude variance. The specification does not disclose this subject matter in such a way as to enable one skilled in the art to make or use this invention. The specification describes separate embodiments where the measurement is an amplitude, frequency or phase value. This is shown in figure 4 where only one measurement is selected and subsequent steps based on that one measurement are made. The specification does not disclose how the method would be carried out using more than one measurement at once. Page 11, lines 7-9 states "a case in which more than one modulation attribute is used for this process is not shown but should be understood from the teachings described." The examiner disagrees with this statement. Without additional information regarding how to make or use the invention as described in claim 62, the specification is not enabled for the claims. Claims 8, 9, 11 and 12 provide additional information regarding the frequency or phase variance but does not describe how the two measurements are used together. Therefore, the dependent claims do not overcome the rejection.

Regarding claims 64, 28, 29, 31 and 32, new claim 64 recites the apparatus receiving a measurement of a frequency variance of a wireless signal or a phase variance of the wireless signal. Claim 21 recites an apparatus which receives an amplitude variance. The specification does not disclose this subject matter in such a way as to enable one skilled in the art to make or use this invention. The specification describes separate embodiments where the measurement is an amplitude, frequency or

phase value. This is shown in figures 6A, 7 and 8. Separate receivers are shown for processing the amplitude variance, the frequency variance and the phase variance. No receiver is shown that comprises a combination of these embodiments. The specification does not disclose how the method would be carried out using more than one measurement at once. Claims 28, 29, 31 and 32 provide additional information regarding the frequency or phase variance but does not describe how the two measurements are used together. Therefore, the dependent claims do not overcome the rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 19, 21, 22, 34, 39, 42, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable Uchida (US 6,618,596) in view of Davis et al (US 5,912,822).

Regarding claim 1, Uchida discloses a method for adapting to rapid changes affecting a received wireless signal, the method comprising:

selecting a parameter adjustment from a plurality of parameters related to the received wireless signal, based on determined rapid change **(column 4, lines 41-56: The moving speed of the mobile is measured and stored. The current moving**

speed is input to the moving speed maximum data transfer rate correspondence table as shown in figure 2. Column 5, lines 3-10: A lower one of the desired data transfer rate and maximum data transfer rate is selected) and performing the parameter adjustment **(column 5, lines 20-23: The base station receives the origination request message supplied from the mobile terminal and communicates with the mobile terminal at the data transfer rate written in the data transfer rate designation field)**.

Uchida does not disclose determining the rapid changes affecting a received wireless signal comprises receiving a measurement of an amplitude variance of the wireless signal and determining a rapid change in the wireless signal by comparing the measurement to a predetermined threshold.

Davis discloses a method for computing the speed of a moving vehicle from the weighted arithmetic mean of the energy spectrum (abstract). Figures 26 and 27 show graphs of energy versus velocity. Figure 26 shows a graph of energy spectrum for a Doppler signal in the absence of a vehicle passing through a radar beam. The presence or absence of a vehicle passing through the radar beam can be detected by comparing the total energy of the energy spectrum to a threshold (column 33, lines 17-33). Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380 (column 33, lines 34-41). Davis discloses this method of determining the velocity of a vehicle

according to a wireless signal. Therefore, Davis discloses determining the rapid changes affecting a received wireless signal **(figures 26 and 27 show the changes in the wireless signal.)** comprises receiving a measurement of an amplitude variance of the wireless signal **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.)** and determining a rapid change in the wireless signal by comparing the measurement to a predetermined threshold **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention to provide the simple substitution of the measurement of the motion speed of Uchida for the method of detecting the velocity of the mobile vehicle of Davis since they will operate in a similar manner (determining the velocity of the mobile) and will yield the same result (the velocity of the mobile).

Regarding claim 2, Davis discloses the detecting is performed by a mobile station **(figure 1)**.

Regarding claim 19, the method of the combination discloses the selecting the parameter adjustment includes selecting to reduce at least one of the FEC coding rate, or the number of modulation symbols, to a minimum level while maintaining the signal path **(by lowering the data transfer rate, the number of symbols transmitted will be reduced.)**.

Regarding claim 21, Uchida discloses an apparatus for adapting to rapid changes affecting a received wireless signal, the apparatus comprising:

A compensator configured to perform a signaling parameter adjustment from a plurality of parameters related to the received wireless signal, based on determined rapid change **(column 4, lines 41-56: The moving speed of the mobile is measured and stored. The current moving speed is input to the moving speed maximum data transfer rate correspondence table as shown in figure 2. Column 5, lines 3-10: A lower one of the desired data transfer rate and maximum data transfer rate is selected)** and performing the parameter adjustment **(column 5, lines 20-23: The base station receives the origination request message supplied from the mobile terminal and communicates with the mobile terminal at the data transfer rate written in the data transfer rate designation field)**.

Uchida does not disclose a processing unit configured to receive a measurement of an amplitude variance of the wireless signal and to determine a rapid change in the wireless signal by comparing the measurement to a predetermined threshold.

Davis discloses an apparatus for computing the speed of a moving vehicle from the weighted arithmetic mean of the energy spectrum (abstract). Figures 26 and 27

show graphs of energy versus velocity. Figure 26 shows a graph of energy spectrum for a Doppler signal in the absence of a vehicle passing through a radar beam. The presence or absence of a vehicle passing through the radar beam can be detected by comparing the total energy of the energy spectrum to a threshold (column 33, lines 17-33). Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380 (column 33, lines 34-41). Davis discloses this method of determining the velocity of a vehicle according to a wireless signal. Therefore, Davis discloses determining the rapid changes affecting a received wireless signal **(figures 26 and 27 show the changes in the wireless signal.)** comprises receiving a measurement of an amplitude variance of the wireless signal **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.)** and determining a rapid change in the wireless signal by comparing the measurement to a predetermined threshold **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the**

threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.).

It would have been obvious for one of ordinary skill in the art at the time of the invention to provide the simple substitution of the measurement of the motion speed of Uchida for the method of detecting the velocity of the mobile vehicle of Davis since they will operate in a similar manner (determining the velocity of the mobile) and will yield the same result (the velocity of the mobile).

Regarding claim 22, Davis discloses the detecting is performed by a mobile station **(figure 1)**.

Regarding claim 39, the method of the combination discloses compensator is configured to reduce at least one of the FEC coding rate, or the number of modulation symbols, to a minimum level while maintaining the signal path **(by lowering the data transfer rate, the number of symbols transmitted will be reduced.)**.

Regarding claim 42, Uchida discloses a non-transitory computer-readable storage medium containing a set of instructions for a general purpose computer, the set of instructions comprising:

An adjusting code segment configured to perform a signaling parameter adjustment from a plurality of parameters related to the received wireless signal, based on determined rapid change **(column 4, lines 41-56: The moving speed of the mobile is measured and stored. The current moving speed is input to the moving speed maximum data transfer rate correspondence table as shown in figure 2. Column 5, lines 3-10: A lower one of the desired data transfer rate and maximum**

data transfer rate is selected) and performing the parameter adjustment **(column 5, lines 20-23: The base station receives the origination request message supplied from the mobile terminal and communicates with the mobile terminal at the data transfer rate written in the data transfer rate designation field)**.

Uchida does not disclose a signal adaptation code segment configured to cause a processor to adapt to rapid changes affecting the signaling path after receiving a measurement of an amplitude variance of the wireless signal and a detection code segment configured to determine a rapid change in the wireless signal by comparing the measurement to a predetermined threshold.

Davis discloses a method for computing the speed of a moving vehicle from the weighted arithmetic mean of the energy spectrum (abstract). Figures 26 and 27 show graphs of energy versus velocity. Figure 26 shows a graph of energy spectrum for a Doppler signal in the absence of a vehicle passing through a radar beam. The presence or absence of a vehicle passing through the radar beam can be detected by comparing the total energy of the energy spectrum to a threshold (column 33, lines 17-33). Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380 (column 33, lines 34-41). Davis discloses this method of determining the velocity of a vehicle according to a wireless signal. Therefore, Davis discloses determining the rapid changes affecting a received wireless signal **(figures 26 and 27 show the changes in**

the wireless signal.) comprises receiving a measurement of an amplitude variance of the wireless signal **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.)** and determining a rapid change in the wireless signal by comparing the measurement to a predetermined threshold **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention to provide the simple substitution of the measurement of the motion speed of Uchida for the method of detecting the velocity of the mobile vehicle of Davis since they will operate in a similar manner (determining the velocity of the mobile) and will yield the same result (the velocity of the mobile).

Regarding claim 63, Davis discloses the determined rapid change is attributable to motion of a communication device associated with a signal path over which the wireless signal is transmitted or motion of an external object in the signal path **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar**

beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.).

Regarding claim 65, Davis discloses the determined rapid change is attributable to motion of a communication device associated with a signal path over which the wireless signal is transmitted or motion of an external object in the signal path **(Column 33, lines 34-41: Turning to figure 27, there is shown a graph of the energy spectrum for a Doppler signal when a single vehicle passing through the radar beam. The total signal energy is in excess of the threshold TH2. The spectrum 380 has a single sharp peak 381 at the velocity of the vehicle, which is approximately the mean velocity v of the spectrum 380.)**.

5. Claims 5, 6, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (US 6,618,596) in view of Davis et al (US 5,912,822) further in view of Watanabe (US 2001/0041584).

Regarding claim 5, the combination of Uchida and Davis discloses the method stated above. The combination does not disclose an automatic gain control loop is found in the receiver. Watanabe discloses a CDMA receiver that includes the AGC amplifier 37A in figure 1. The AGC amplifier is provided for amplifying the received signal to a desired signal level, in which its gain may automatically be controlled to optimum so that the received power may become as minimal as necessary depending on the distance from the base station (paragraph 0066). Therefore, Watanabe discloses

detecting is based on a signal in an AGC loop **(figure 1 and paragraph 0066: the AGC amplifier is provided for amplifying the received IF signal passing through the BPF 36A to a desired signal level, in which the gain may automatically by controlled to optimum so that its received power may become as minimal possible as necessary depending on the distance from the base station.).** It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the AGC amplifier of Watanabe into the receiver and method of the combination of Uchida and Davis. The receiver will increase the received signal level as the distance between the receiver and the base station increases so the signal can be received and processed correctly. This variable gain control will further minimize errors in the received signal (paragraph 0066).

Regarding claim 6, Watanabe discloses the detecting is a function of a statistic of the signal in the AGC loop **(figure 1 and paragraph 0066: the AGC amplifier is provided for amplifying the received IF signal passing through the BPF 36A to a desired signal level, in which the gain may automatically by controlled to optimum so that its received power may become as minimal possible as necessary depending on the distance from the base station.)**.

Regarding claim 25, the combination of Uchida and Davis discloses the apparatus stated above. The combination does not disclose the processing unit is configured to detect motion based on a signal in an automatic gain control loop is found in the receiver. Watanabe discloses a CDMA receiver that includes the AGC amplifier 37A in figure 1. The AGC amplifier is provided for amplifying the received signal to a

desired signal level, in which its gain may automatically be controlled to optimum so that the received power may become as minimal as necessary depending on the distance from the base station (paragraph 0066). Therefore, Watanabe discloses the processing unit is configured to detect motion based on a signal in an AGC loop **(figure 1 and paragraph 0066: the AGC amplifier is provided for amplifying the received IF signal passing through the BPF 36A to a desired signal level, in which the gain may automatically by controlled to optimum so that its received power may become as minimal possible as necessary depending on the distance from the base station.).** It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the AGC amplifier of Watanabe into the receiver and method of the combination of Uchida and Davis. The receiver will increase the received signal level as the distance between the receiver and the base station increases so the signal can be received and processed correctly. This variable gain control will further minimize errors in the received signal (paragraph 0066).

Regarding claim 26, Watanabe discloses the processing unit is configured to detect motion as function of a statistic of the signal in the AGC loop **(figure 1 and paragraph 0066: the AGC amplifier is provided for amplifying the received IF signal passing through the BPF 36A to a desired signal level, in which the gain may automatically by controlled to optimum so that its received power may become as minimal possible as necessary depending on the distance from the base station.)**.

6. Claims 8, 9, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (US 6,618,596) in view of Davis et al (US 5,912,822) further in view of Nakamura et al (US 6,408,189) in view of Ramberg et al (US 2004/0258140).

Regarding claim 8, the combination of Uchida, Davis and Nakamura discloses the method stated above. Nakamura discloses the detecting is based on a phase error as stated in column 5, line 64 to column 6, line 7 and shown in figure 2. The combination does not disclose the phase error is based on a phase error signal produced by at least one of a delay lock loop, matched filter, or correlator.

Ramberg discloses calculating phase errors using correlators the code phase tracking is used to ensure that the receiver does not lose alignment with the signal as a result of clock drift (paragraph 0056). The receiver uses the correlation outputs of the early and late correlators associated with the on-phase correlators aligning to the incoming signal during each symbol period to calculate a code phase error (paragraph 0056). The code phase error is used to update the clocking rate (paragraph 0057). Therefore, Ramberg discloses the phase error is based on a phase error signal produced by at least one of a delay lock loop, matched filter, or correlator **(paragraph 0056: The receiver uses the correlation outputs of the early and late correlators associated with the on-phase correlators aligning to the incoming signal during each symbol period to calculate a code phase error).**

It would have been obvious for one of ordinary skill in the art at the time of the invention to provide this simple substitution of the phase error calculator of Ramberg for the phase error detector of the combination of Uchida, Davis and Nakamura since they

operate in substantially the same manner (calculating phase errors) and will yield the same result (phase errors).

Regarding claim 9, Nakamura discloses the detecting is a function of a statistic of the phase error signal **(column 6, lines 1-7: the variance of the phase errors are used.).**

Regarding claim 28, the combination of Uchida, Davis and Nakamura discloses the apparatus stated above. Nakamura discloses the detecting is based on a phase error as stated in column 5, line 64 to column 6, line 7 and shown in figure 2. The combination does not disclose the phase error is based on a phase error signal produced by at least one of a delay lock loop, matched filter, or correlator.

Ramberg discloses calculating phase errors using correlators the code phase tracking is used to ensure that the receiver does not lose alignment with the signal as a result of clock drift (paragraph 0056). The receiver uses the correlation outputs of the early and late correlators associated with the on-phase correlators aligning to the incoming signal during each symbol period to calculate a code phase error (paragraph 0056). The code phase error is used to update the clocking rate (paragraph 0057). Therefore, Ramberg discloses the phase error is based on a phase error signal produced by at least one of a delay lock loop, matched filter, or correlator **(paragraph 0056: The receiver uses the correlation outputs of the early and late correlators associated with the on-phase correlators aligning to the incoming signal during each symbol period to calculate a code phase error).**

It would have been obvious for one of ordinary skill in the art at the time of the invention to provide this simple substitution of the phase error calculator of Ramberg for the phase error detector of the combination of Uchida, Davis and Nakamura since they operate in substantially the same manner (calculating phase errors) and will yield the same result (phase errors).

Regarding claim 29, Nakamura discloses the detecting is a function of a statistic of the phase error signal **(column 6, lines 1-7: the variance of the phase errors are used.).**

7. Claims 16, 17, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (US 6,618,596) in view of Davis et al (US 5,912,822) in view of Thomas (US 6,697,642).

Regarding claim 16, the combination of Uchida and Davis discloses the method stated above. The combination does not disclose selecting the parameter includes selecting an antenna mode which comprises changing from directive to omni-directional. Thomas discloses antenna controller 516 of control circuitry 406 will initialize the antenna in an omni-directional mode may occur in response to a sudden or catastrophic degradation on signal quality whilst the antenna is operating in a narrow beam mode (column 10, lines 21-30). Therefore, Thomas discloses the selecting the parameter adjustment includes selecting the antenna mode, which comprises changing from directive to omni-directional **(column 10, lines 21-30: antenna controller 516 of control circuitry 406 will initialize the antenna in an omni-directional mode may**

occur in response to a sudden or catastrophic degradation on signal quality whilst the antenna is operating in a narrow beam mode).

It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the antenna mode selection of Thomas into the method of the combination of Uchida and Davis. The additional control of changing the antenna mode will allow the communication system to operate in a sudden degradation of signal quality. This will allow the system to function in a different mode until quality has improved, increasing the efficiency of the communication system.

Regarding claim 17, Thomas discloses the selecting the parameter adjustment includes selecting the antenna mode, which comprises changing from omni-directional to directive **(column 10, lines 21-30: antenna controller 516 of control circuitry 406 will initialize the antenna in an omni-directional mode may occur in response to a sudden or catastrophic degradation on signal quality whilst the antenna is operating in a narrow beam mode. Once the sudden degradation has ended and signal quality has improved, narrow beam mode will resume.).**

Regarding claim 35, the combination of Uchida and Davis discloses the method stated above. The combination does not disclose selecting the parameter includes selecting an antenna mode which comprises changing from directive to omni-directional. Thomas discloses antenna controller 516 of control circuitry 406 will initialize the antenna in an omni-directional mode may occur in response to a sudden or catastrophic degradation on signal quality whilst the antenna is operating in a narrow beam mode (column 10, lines 21-30). Therefore, Thomas discloses an antenna having

a changeable antenna mode, wherein the compensator is configured to change the antenna mode **(column 10, lines 21-30: antenna controller 516 of control circuitry 406 will initialize the antenna in an omni-directional mode may occur in response to a sudden or catastrophic degradation on signal quality whilst the antenna is operating in a narrow beam mode).**

It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the antenna mode selection of Thomas into the apparatus of the combination of Uchida and Davis. The additional control of changing the antenna mode will allow the communication system to operate in a sudden degradation of signal quality. This will allow the system to function in a different mode until quality has improved, increasing the efficiency of the communication system.

Regarding claim 36, Thomas discloses the compensator is configured to change the antenna mode between directive and omni- directional modes **(column 10, lines 21-30: antenna controller 516 of control circuitry 406 will initialize the antenna in an omni-directional mode may occur in response to a sudden or catastrophic degradation on signal quality whilst the antenna is operating in a narrow beam mode. Once the sudden degradation has ended and signal quality has improved, narrow beam mode will resume.).**

8. Claims 62, 64, 11, 12, 31 and 32 and 64 rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida (US 6,618,596) in view of Davis et al (US 5,912,822) further in view of Nakamura et al (US 6,408,189).

Regarding claim 62, the combination of Uchida and Davis discloses the method stated above. The method does not disclose receiving a measurement of frequency variance of the wireless signal or a phase variance of the wireless signal.

Nakamura discloses a method for adapting to changes affecting a wireless signal **(column 5, lines 64 to column 6, line 7: the moving speed of the mobile station is detected based on the variance of the phase errors in phase compensation of the received signal.)** This reception of a phase variance is used to adaptively control a filter **(figure 2 and column 5, lines 64 to column 6, line 7: the phase errors based on the detected moving speed is used to adaptively control the transversal filter 60.)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the teaching of Nakamura into the method of the combination Uchida and Davis. The additional measurement will allow a filter to be controlled. This control will allow the filter to best recover transmitted data and that data will be free of unwanted components.

Regarding claim 64, the combination of Uchida and Davis discloses the apparatus stated above. The apparatus does not disclose receiving a measurement of frequency variance of the wireless signal or a phase variance of the wireless signal.

Nakamura discloses a method for adapting to changes affecting a wireless signal **(column 5, lines 64 to column 6, line 7: the moving speed of the mobile station is detected based on the variance of the phase errors in phase compensation of the received signal.)** This reception of a phase variance is used to adaptively control a

filter **(figure 2 and column 5, lines 64 to column 6, line 7: the phase errors based on the detected moving speed is used to adaptively control the transversal filter 60.)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the teaching of Nakamura into the method of the combination Uchida and Davis. The additional measurement will allow a filter to be controlled. This control will allow the filter to best recover transmitted data and that data will be free of unwanted components.

Regarding claims 11, 12, 31 and 32, the combination discloses the method and apparatus stated above. MPEP 2111.04 discloses claim scope is not limited by steps or components that suggest or makes optional but does not require steps to be performed. Calculating the measurement based on a frequency error signal as recited in these dependent claims are optional limitations since the measurement of a frequency variance or a phase variance is met by the references.

Conclusion

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571)272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin M. Burd/
Primary Examiner, Art Unit 2632
5/7/2013